by said reacting, generating a solution of a first coil-forming peptide having a selected charge for interacting with a second, oppositely charged coil-forming peptide to form a stable α-helical coiled-coil heterodimer,

contacting the first coil-forming peptide generated by said reaction with a biosensor having a detection surface with surface-bound molecules of said second, oppositely charged coil-forming peptide, under conditions effective to form a stable α-helical coiled-coil heterodimer on said detection surface, where binding of the coil-forming peptide to the immobilized coil-forming peptide measurably alters a signal generated by the biosensor, and

measuring the signal generated by the biosensor to determine whether said coiled-coil heterodimer formation on said detector surface has occurred.

B1 cont'd

B2

4. (Amended) The method of claim 1, wherein said analyte is a ligand, and said reacting includes mixing the analyte with a conjugate of the first coil-forming peptide and the analyte or an analyte analog, under conditions that the conjugate is displaced from an immobilized analyte-binding anti-ligand agent when analyte is present.

5. (Amended) The method of claim 1, wherein the analyte is an enzyme and said reacting enzymatically releases said second coil-forming peptide in soluble form when analyte is present.

6. (Amended) The method of claim 1, wherein the biosensor is an electrochemical biosensor that includes a conductive detection surface, a monolayer composed of hydrocarbon chains anchored at their proximal ends to the detection surface, and the second charged coil-forming peptide also anchored to said surface, where binding of the first peptide to the second peptide, to form said heterodimer, measurably alters current flow across the monolayer mediated by a redox ion species in an aqueous solution in contact with the monolayer, relative to electron flow observed when the second peptide alone is present.

7. (Amended) The method of claim 6, wherein the redox ion species has a charge equal to said second coil-forming peptide, and binding of the first peptide to the second peptide enhances ion-mediated current flow across said monolayer.

9. (Amended) The method of claim 6, wherein the redox ion species has a charge opposite that of said second coil-forming peptide, and binding of the first peptide to the second peptide reduces ion-mediated current flow across said monolayer.

B3

10. (Amended) The method of claim 6, wherein the redox ion species is $Fe(CN)_6^{3-}$, if the charge of said first coil-forming peptide is positive, and $Ru(NH_3)_6^{3+}$, if the charge of said first coil-forming peptide is negative.